THOMSON

Thomson Inc.

10330 North Meridian Street
INH-430
Indianapolis, IN 46290
USA

Telephone: (317) 587-4832
Fax: (317) 587-6708
Mobile: (317) 701-0084
Dave.Arland@thomson.net
www.thomson.net

David H. Arland
Director, Worldwide Public & Trade Relations
Consumer Products

June 20, 2003

Mr. W. Kenneth Ferree
Chief, Media Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

TRANSMITTED ELECTRONICALLY

Dear Mr. Ferree:

Thank you for your May 20 letter asking for more information about certain aspects of the digital television transition. As one of the leaders in offering integrated high-definition television (HDTV) sets with built-in tuner/decoders, Thomson is pleased to respond to your five areas of inquiry.

Thomson is the manufacturer and marketer of RCA, RCA Scenium, and GE-brand home entertainment products and we have been actively marketing HDTV Monitors, HDTV Sets, HDTV displays, and HDTV terrestrial and satellite set-top receivers since 1999. Additionally, Thomson's well-known Grass Valley broadcast equipment business is the broadcast industry's second-largest supplier of production equipment such as high-definition video switchers, servers, routers, and cameras for terrestrial broadcasters, and cable and satellite network operators. Thomson is deeply committed to a successful digital TV transition because it is our future – and it is the future for our customers and for consumers.

1. Promotion of Digital Television and Consumer Education

Through the development and marketing of high-definition consumer products, Thomson has been actively marketing the digital TV transition to consumers since before the transition began. We played a key role in the standards setting process, including the "Grand Alliance" recommendation that eventually became the U.S. standard for digital television transmission. Key Thomson compression technologies are recognized as integral elements to the ATSC broadcast standard. In 1991, the same compression advancements played a role in our selection by DIRECTV to develop with them the consumer products that today make possible high-power, digital, direct-to-home satellite service throughout the United States.

Indeed, the consumer electronics industry, perhaps more than any other, has invested enormous resources and time to the development and promotion of digital television. Today, these investments are bearing fruit: the adoption rate for digital television has been more rapid than that of the PC, VCR, CD player and color TV, and the industry expects that total investment in digital television since its introduction to the market in 1998 will reach $15 billion by the end of 2003.

Since the transition began, Thomson has been and continues to be an active sponsor of high-definition TV programming on major TV networks. We have sponsored nearly a dozen sports broadcasts in high-definition or digital format, including three "Super Bowl" broadcasts with different networks to leverage Thomson's sponsorship as the official consumer electronics brand of the National Football League. Specifically, Thomson was the underwriter for digital production of the 2001 Super Bowl on CBS, the 2002 Super Bowl on FOX, and the 2003 Super Bowl on ABC. We have sponsored the HDTV broadcasts of the AFC football championships, divisional playoffs, and wild card games as well as the NCAA Final Four basketball tournament (played in 2000 in the RCA Dome in our home city of Indianapolis) as well as a portion of last summer's U.S. Open Tennis in HDTV – all on CBS. Early in the transition, Thomson also helped our local NBC affiliate in Indianapolis to telecast the annual RCA Tennis Championships in HDTV, showing viewers at home and those watching demonstration RCA HDTV displays at the Indianapolis Tennis Center the benefits of seeing the full panorama of a tennis court during a widescreen high-definition broadcast.

In addition to the actual broadcast games, our integrated marketing program has included print advertising in publications such as *Sports Illustrated* and *USAToday* as well as promotion of the events on www.NFL.com and cbs.sportsline.com. We have participated in consumer contests and giveaways to heighten awareness of the high-definition broadcasts, and have produced our own high-definition format television commercials promoting RCA products for on-air advertising of our HDTV products.

Thomson has long recognized that the most effective way to promote high-definition digital television to consumers is to make our HDTV consumer products affordable to as many consumers as possible, and as quickly as possible. Thomson's first HDTV, a 61-inch projection model built in 1999, carried a suggested retail price of $7,999 and featured built-in terrestrial digital television tuning/decoding and integrated electronics for reception of standard and high-definition DIRECTV signals. Today, a similar 61-inch RCA Scenium fully-integrated HDTV Set (which now includes both DTVLink-1394 and DVI-HDTV secure digital interfaces) will soon reach retail stores with a consumer suggested retail price of $2,899 – ***more than a 60 percent drop in suggested retail pricing.*** Similarly, Thomson offers a line of widescreen HDTV Monitors for use with separate set-top digital receivers that begin at a suggested retail price of $1,499. Through our retail partners, we have also actively promoted the sale of the industry's most affordable set-top HDTV receiver – the $549 (suggested retail price) RCA DTC100 that also offered the ability to tune and decode both over-the-air terrestrial and DBS high-definition signals. We are proud that the DTC100 receiver has long been regarded as standard equipment in hundreds of broadcast stations, as well.

Since those first products were introduced, Thomson has offered a variety of RCA, RCA Scenium, and GE-brand high-definition television products. Today, our product range for 2003 includes:

-- Seven models of rear projection HDTV Sets – in 50-inch, 52-inch, 56-inch and 61-inch widescreen sizes – all with integrated digital TV tuner/decoder functionality;

--Seven models of rear projection HDTV Monitors (with built-in analog tuning capability), both with and without integrated DVD players, in 34-inch, 52-inch, 56-inch, and 61-inch screen sizes;

--High-definition widescreen RCA Scenium LCD displays in 27-inch and 30-inch screen sizes and high-definition widescreen Plasma displays in 42-inch and 50-inch screen sizes, and;

--Three new set-top receivers for digital television, including a model that receives ATSC broadcasts, a model that receives ATSC and NTSC broadcasts, and a hard-drive recorder that can record either standard definition or high-definition digital broadcasts through the protected two-way DTVLink (1394) connection, allowing consumers finally to record and time-shift high-definition TV programming.

Additionally, Thomson is promoting consumer interest in digital television by continually charting new frontiers of HDTV display technology. Thomson was the first in the industry to bring to market Liquid Crystal On Silicon microdisplay-powered receivers with our 50-inch RCA Scenium L50000 that featured built-in terrestrial and DIRECTV high-definition tuning and decoding. Recently, we embarked on a new project with Texas Instruments and InFocus to offer 50-inch and 61-inch microdisplay high-definition televisions that utilize Digital Light Processing (DLP) technology and allow a thin and lightweight rear-projection design.

Another critical element to the transition's success is educating retail sales staff and consumers about digital television. We offer extensive information about our digital television products to consumers, online at www.RCA.com and www.RCAScenium.com. Retail customers and their salespeople have utilized several Thomson services. We assist with large group sales training at several accounts, offering RCA experts to train 30 or 40 people at a time. We share information about the digital TV transition, specific broadcaster status in each market, and suggest websites for future reference. Thomson also offers in-store representatives to demonstrate and to sell our digital television products alongside the retailer's own salespeople – typically during high-volume weekend shopping. A third element in retail sales training is our RCASupport.com website that is always available for retail salespeople, customized by customer account, teaching more about the digital TV transition and RCA's selection of digital TV products. Thomson also offers digital TV certification for sales staff through our RCA Center for Retail Support.

Thomson is an active contributor to the ongoing and ever-expanding efforts of the Consumer Electronics Association to promote digital television to consumers, retailers, and broadcasters. We have supplied sample products for consumer demonstrations, assisted with special HDTV promotional events, and fielded hundreds of questions from reporters throughout the country who have written stories in their local papers about the digital TV transition. We have also been involved in numerous broadcast, satellite, and consumer electronics industry functions, panels, and demonstrations to showcase the benefits of digital high-definition television for broadcasters, network operators, and consumers.

Our commitment to digital television does not end with consumer products. Thomson's professional broadcast equipment business is helping broadcasters and network operators create new compelling programming in various high-definition formats.

Through its Grass Valley line of post-production and broadcast equipment and its Technicolor services to Hollywood studios, Thomson is also playing a key "behind the scenes" roll in the digital TV transition. Grass Valley DataCine and TeleCine scanners are being used by post-production companies throughout the world to convert filmed content into high-definition digital data, and Technicolor's Entertainment Services arm is now actively mastering both old and new films in high-definition for studio clients. Grass Valley cameras, switchers, routers, and servers are the digital backbone for some of this year's most watched high-definition programming -- including the launch of ESPN-HD, programming on HDNet, and ABC's first-ever HDTV Academy Awards telecast. Thomson is making it possible for the producers of high-definition programming to create new markets for their shows and

events, with a special emphasis on flexible equipment that can accommodate each of the high-definition formats.

Thomson regards digital television as our future for the home entertainment business, and we have invested heavily in research and product development to bring a variety of products to market, at increasingly affordable prices, to meet virtually any consumer or professional need.

2. Meeting Digital Tuner/Decoder Mandate

Thomson is deep in the development cycle for its 2004 line of HDTV consumer products and intends to fully meet the requirement that at least 50% of our unit sales of televisions 36-inch or larger include integrated terrestrial tuner/decoders by July 1, 2004. We are now developing products that will ensure that we meet the other requirements of the digital tuner/decoder mandate from 2004 through 2007.

A critical element of meeting this mandate, as Thomson stated in its letter of support for the mandate concept prior to the FCC's August 2002 decision, is "plug-and-play" cable functionality.

We anticipate that the majority of consumers who will be shopping for HDTV Sets will be expecting "cable ready" products that work seamlessly with existing cable networks. For this reason, it is imperative that the Commission rapidly adopt the HDTV "Plug & Play" agreement that is now pending before the FCC.

Thomson served as one of the negotiators of this landmark industry agreement, which carefully balances the expectations of consumers with the need to protect digital content from illicit redistribution.

The fact that the vast majority of Americans receive their television from cable makes "HDTV-over-cable" functionality a critical element to "mainstreaming" the digital television transition for consumers, and thus speeding the transition toward a more rapid conclusion.

In addition, the broadcast community is today providing only a miniscule amount of digital programming promotion on their analog channels or in daily program listing in printed format. This represents an enormous missed opportunity to promote the digital TV transition and to educate consumers about their digital TV choices. Particularly as the digital tuner/decoder mandate kicks in, it is essential that consumers have ready access to information regarding the digital programming options. Thomson urges the Commission to strongly encourage broadcasters to provide this information to consumers -- both on their analog channels and in print listings – as quickly and completely as possible.

3. ATSC and QAM tuners

Every Thomson HDTV Set labeled as "cable-ready" for HDTV will have both QAM and VSB (ATSC) tuning/decoding capability. There is no reason for a television manufacturer to offer a "cable only" TV product, despite the irrational fears fanned by some in the broadcast community. Such a "cable only" product would have limited utility and functionality for consumers and thus fall far short of what they will demand of the digital television receiver products they purchase.

4. Reception of Digital TV Signals

Thomson has often stated that the digital TV transition is a learning process. Successive generations of DTV products are improving as television manufacturers' gain more and more *real world* experience with DTV transmissions and the various factors required to adequately receive, process, and display digital audio and video signals.

Thomson's standalone and integrated digital TV tuner/decoders are designed for an average noise figure of 7 dB – better than the FCC 10 dB planning factors and easier to attain for VHF than for UHF frequencies. Thomson has added significant costs and improved reception selectivity by using two Surface Acoustic Wave filters in the tuner, and our overall receiver performance has improved from generation to generation as actual digital TV transmission characteristics have been analyzed and changes made to subsequent designs.

With regard to rejection of radio frequency signals on adjacent channels, Thomson has taken steps to improve our adjacent channel performance over the three product generations. As an example, Thomson's latest design will mark a 7 to 10 dB improvement over our first generation products. At this level, adjacent channel rejection is limited by the spurious energy in the adjacent band radiated from the interfering transmitter. Similar results have been attained with input sensitivity, which improves by some 2.5 dB in Thomson's latest design. These improvements come without government intervention but rather in the presence of a much more powerful motivation – competitive pressure from within the consumer electronics industry for better product performance.

We believe that multipath performance remains an important issue. Thomson has designed, manufactured, and sold competitive products to handle multipath interference and we are investing even more resources to insure constant improvement. We believe that promising new multipath cancellation technology from LINX Electronics will minimize the majority of multipath problems where received signal strength is sufficient. Thomson is planning to utilize LINX technology in future generations of digital TV receivers.

Notwithstanding these advances in receiver capabilities and performance, accurate and robust reception is inevitably and directly related to the strength of the signal transmitted by the broadcaster.

Regrettably, most local broadcasters are NOT transmitting their digital TV signals at full-power. In fact, the Commission's most recent figures indicate that only 25 percent of commercial broadcast stations are "on the air" with a digital television transmission signal that covers their analog station service areas. This raises the prospect that a very significant number of homes that receive a station's analog signal cannot receive that station's digital signal.

The availability of only a low-power signal can significantly hamper the ability of any terrestrial receiver -- regardless of input sensitivity -- to properly receive, tune, and decode digital TV signals.

For example, with the prevalent use of low power TV transmitters, there are instances where the adjacent channel interference ratios will be well in excess of planning factors used to design the receiver components. We designed our receivers assuming, appropriately, that broadcasters would fully engage in their responsibilities in this transition and send signals at full strength in compliance with the transition plan embodied in FCC regulations. This issue is further exacerbated by spurious transmitter radiation, especially for digital television transmitters.

Thus, the suggestion by many broadcasters that "insensitive receivers" are somehow to blame for poor consumer reception of digital TV signals misses the real problem, which, Thomson respectfully suggests, lies not with receiver sensitivity but rather by a lack of commitment of the broadcasting community to transmit their digital TV signals at full power. To that end, as Thomson and others have suggested in comments in the Commission's Digital Television Periodic Review proceeding (MB Docket 03-15), the Commission, at a very minimum, should establish an interim deadline of July 1, 2004 (concurrent with the first digital tuner/decoder deadline), by which all broadcasters must transmit a digital signal of sufficient strength to serve their entire Grade A contour.

5. Deployment of Secure Digital Connectors

Thomson was the first HDTV manufacturer to deploy both the DTVLink-1394 connection with DTCP (5C) copy protection and the DVI-HDTV connection with HDCP copy protection in 2002. All of our current HDTV Monitors feature the copy protected DVI-HDTV connection and all of our current HDTV Sets include both copy protected DVI-HDTV and the copy protected DTVLink-1394 interfaces.

Thomson's newly-announced ATSC and ATSC/NTSC set-top receivers will feature the DVI-HDTV connection. Our high-definition hard-disc drive recorder, the DVR10, will ship with a DTVLink-1394 connection that will enable the device to securely record content from the tuner of 1394-equipped HDTV Set.

Upon approval of the Cable and CE-negotiated "Plug & Play" Agreement by the FCC, we anticipate designing and manufacturing future HDTV products that will continue to have the secure DVI-HDTV and successor HDMI interface for seamless, protected connections to future set-top devices.

Thomson fully supports the content protection capabilities of these two different interfaces, recognizing that both will be needed in the future in order to insure that the consumer can continue to record TV programs for viewing at a different time. Similarly, we believe that the high-definition analog connection will need support for a period of several years, as this has been the primary method of porting HDTV content from set-top receiver to display since the transition began in 1998. Millions of consumers will depend upon the analog high-definition "Y Pr Pb" connection for high-definition content until the affected industries successfully migrate to secure connections. Thomson is proud to have initiated the consumer electronics industry's transition to secure connections in 2002.

In conclusion, Thomson thanks the Media Bureau for the opportunity to reiterate our support for the digital television transition and we look forward to a future of more functional and less expensive consumer digital television products for all Americans.

Sincerely yours,

David H. Arland
Director – Public & Trade Relations
Thomson